storing each of the types of separated form data in a different storage location according to one of the first kind of attribute and the second kind of attribute of each type of the separated form data;

reading each one of the plural types of stored form data;

applying a different image process to each one of the read plural types of stored form data; and

outputting the processed form data on one page.

REMARKS

Claims 1-30 are pending in this application and have been rejected. Claims 1, 6, 11-16, 21, and 26-30 have been amended herein. No new matter is being presented, and approval and entry are respectfully requested.

Rejections Under 35 U.S.C. §102

In items 2 and 3 on pages 2-4 of the Office Action, the Examiner rejected claims 1-30 under 35 U.S.C. §102(e) as being anticipated by Kageyama et al. (U.S. Patent No. 5,774,638). Applicants respectfully traverse these rejections for the reasons presented below.

Claim 1 of the present invention specifies, as amended, that each type of print data has an attribute designated by a host computer that **identifies the type of print data**. The attribute includes a first kind of attribute and a second kind of attribute, and each kind of print data is stored in a different storage location of an image buffer according to the attribute of that print data. Independent claims 6, 11-16, 21, and 26-30 recite similar language.

The "attribute" of the present invention and the "attribute" of the Kageyama reference are not the same. The "drawing attribute parameters" of Kageyama include character font, character pitch, row pitch, italics, paper size, number of copies, underlining, etc. (see Kageyama at col. 22, line 63 to col. 23, line 2; and col. 28, lines 57-58). In contrast, the "attribute" of the present invention identifies the type of data to be printed, such as a form, an image, text, or a band of data. Thus, the drawing attribute parameters of Kageyama and the attribute of the invention are not the same.

Also, independent claim 13 of the present invention specifies separating the types of print data corresponding to an image with text into print data corresponding to the image and print data corresponding to the text, and storing the separated print data in different storage locations depending on the type of print data. For example, only the image data would be stored in one storage location and only the text data would be stored in another storage location. Independent claims 14, 15, and 28-30 recite similar language.

In item 4 on page 5 of the outstanding Office Action, the Examiner asserted that master processor module 100 of Figure 1 of Kageyama teaches the separation unit of the present invention for separating print data according to type of attribute, and that the shared memory 141 stores the separated print data. The Examiner cited col. 3, line 10 to col. 4, line 19 in support of his assertions.

The cited portion of Kageyama discloses that the master processor divides one page into areas #1 through #K, acquires a partial page buffer in a free state for each area, and instructs each slave processor to draw a corresponding area by starting a process called "intrapaginal-mode individual drawing task." See Kageyama at col. 3, lines 55-63.

In the intrapaginal-mode individual drawing task process #k of the kth slave processor SPUk, a process of setting drawing attribute parameters and a drawing process are executed for the area #k. The local memories 103, 113, 123, etc., included in respective processor modules 100, 110, 120, etc., are used as the partial page buffers that correspond to the areas #1, #1, ..., #K. See Kageyama at col. 26, line57 to col. 27, line 58.

Thus, while Kageyama discloses dividing a **page** into multiple areas and storing the data to be printed for each area in different partial page buffers, Kageyama does not disclose separating the **data** into multiple data sets depending on the type of data received. In other words, Kageyama does not disclose separating data containing multiple types of data (e.g., containing both text and image data) into independent data sets, each containing one type of data, and storing each independent data set in a different storage location.

Therefore, it is submitted that independent claims 1, 6, 11-16, 21, and 26-30 patentably distinguish over the prior art. As for the dependent claims, the dependent claims depend from the above-discussed independent claims and are patentable over the prior art for at least the reasons discussed above.

Therefore, Applicants submit that claims 1-30 patentably distinguish over the prior art. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under §102.

CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding rejections, the application is submitted to be in condition for allowance, which action is earnestly solicited.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Finally, if there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 12/3/02   By: _C. Joan Gilsdorf_
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please **AMEND** the following claims:

1. (FOUR TIMES AMENDED) A printer outputting a plurality of types of print data corresponding to one or more images to be printed on one page, each of the types of print data having an attribute <u>identifying the type of print data, the attribute</u> comprising one of a first kind of attribute and a second kind of attribute and being designated by a host computer, said printer comprising:

an image buffer having a plurality of storage locations and storing each type of print data, one by one, in a different one of the storage locations according to one of the first kind of attribute and the second kind of attribute of each type of print data;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of print data stored in a corresponding storage location of said image buffer;

a print data integration circuit integrating the plurality of types of print data read by said video interfaces to be printed on one page; and

an output mechanism outputting the integrated print data on one page.

6. (FOUR TIMES AMENDED) A controller controlling a plurality of types of print data to be printed on one page, each of the types of print data having an attribute <u>identifying the type of print data, the attribute</u> comprising one of a first kind of attribute and a second kind of attribute and being designated by a host computer, said controller comprising:

a plurality of video interfaces, each of said video interfaces independently reading one of the types of print data stored in a corresponding one of a plurality of storage locations of an image buffer according to one of the first kind of attribute and the second kind of attribute of each type of print data; and

a print data integration circuit integrating the plurality of types of print data read by said video interfaces to be printed on one page.

11. (THREE TIMES AMENDED) A printer processing a plurality of types of print data according to an attribute of each type of print data, the attribute <u>identifying the type of print data,</u>

the attribute comprising one of a first kind of attribute and a second kind of attribute and being designated by a host computer, and the print data to be printed on one page, comprising:

an image buffer storing each type of print data in a corresponding one of a plurality of storage locations of said image buffer;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of print data stored in a corresponding storage location of said image buffer; and

a plurality of image processing circuits, each of said image processing circuits applying an image process to the type of print data read by a corresponding one of said video interfaces.

12. (THREE TIMES AMENDED) A method of processing a plurality of types of print data according to an attribute of each type of print data, the attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being designated by a host computer, the print data to be printed on one page, comprising:

storing each type of print data in a different storage location;

reading each one of the plural types of stored print data;

applying a different image process to each one of the read plural types of stored print data; and

outputting the processed print data on one page.

13. (ONCE AMENDED) A printer outputting a plurality of types of print data corresponding to one or more images to be printed on one page, each of the types of print data having an attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, said printer comprising:

a separation unit separating the types of print data corresponding to an image with text into a type of print data corresponding to the image as the first kind of attribute and a type of print data corresponding to the text as the second kind of attribute;

a storage unit storing each of the types of separated print data in a different one of storage locations according to one of the first kind of attribute and the second kind of attribute of each type of the separated print data;

an image buffer having a plurality of the storage locations and storing each type of the separated print data, one by one, in a different one of the storage locations according to one of

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the first kind of attribute and the second kind of attribute of each type of the separated print data;

a plurality of video interfaces, each of said video interfaces dependently reading one of the types of print data stored in a corresponding storage location of said image buffer;

a print data integration circuit integrating the plurality of types of print data read by said video interfaces to be printed on one page; and

an output mechanism outputting the integrated print data on one page.

14. (ONCE AMENDED) A controller controlling a plurality of types of print data to be printed on one page, each of the types of print data having an attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, said controller comprising:

a separation unit separating the types of print data corresponding to an image with text into a type of print data corresponding to the image as the first kind of attribute and a type of print data corresponding to the text as the second kind of attribute;

a storage unit storing each of the types of separated print data in a different one of storage locations of an image buffer according to one of the first kind of attribute and the second kind of attribute of each type of the separated print data;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of print data stored in a corresponding one of a plurality of the storage locations of said image buffer according to one of the first kind of attribute and the second kind of attribute of each type of print data; and

a print data integration circuit integrating the plurality of types of print data read by said video interfaces to be printed on one page.

15. (ONCE AMENDED) A method of processing a plurality of types of print data according to an attribute of each type of print data, the attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, and the print data to be printed on one page, comprising:

separating the types of print data corresponding to an image with text into a type of print data corresponding to the image as the first kind of attribute and a type of print data corresponding to the text as the second kind of attribute;

storing each of the types of separated print data in a different storage location according to one of the first kind of attribute and the second kind of attribute of each type of the separated print data;

reading each one of the plural types of stored print data;

applying a different image process to each one of the read plural types of stored print data; and

outputting the processed print data on one page.

16. (ONCE AMENDED) An image forming apparatus outputting a plurality of types of form data corresponding to one or more images to be formed on one page, each of the types of form data having an attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and explicitly designated by a host computer, said image forming apparatus comprising:

an image buffer having a plurality of storage locations and storing each type of form data, one by one, in a different one of the storage locations according to one of the first kind of attribute and the second kind of attribute of each type of form data;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of form data stored in a corresponding storage location of said image buffer;

a form data integration circuit integrating the plurality of types of form data read by said video interfaces to be formed on one page; and

an output mechanism outputting the integrated form data on one page.

21. (ONCE AMENDED) A controller controlling a plurality of types of form data to be formed on one page, each of the types of form data having an attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, said controller comprising:

a plurality of video interfaces, each of said video interfaces independently reading one of the types of form data stored in a corresponding one of a plurality of storage locations of an

image buffer according to one of the first kind of attribute and the second kind of attribute of each type of form data; and

a form data integration circuit integrating the plurality of types of form data read by said video interfaces to be formed on one page.

26. (ONCE AMENDED) An image forming apparatus processing a plurality of types of form data according to an attribute of each type of form data, the attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, and the form data to be formed on one page, comprising:

an image buffer storing each type of form data in a corresponding one of a plurality of storage locations of said image buffer;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of form data stored in a corresponding storage location of said image buffer; and

a plurality of image processing circuits, each of said image processing circuits applying an image process to the type of form data read by a corresponding one of said video interfaces.

27. (ONCE AMENDED) A method of processing a plurality of types of form data according to an attribute of each type of form data, the attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, and the form data to be formed on one page, comprising:

storing each type of form data in a different storage location;

reading each one of the plural types of stored form data;

applying a different image process to each one of the read plural types of stored form data; and

outputting the processed form data on one page.

28. (ONCE AMENDED) An image forming apparatus outputting a plurality of types of form data corresponding to one or more images to be formed on one page, each of the types of form data having an attribute identifying the type of print data, the attribute comprising one of a

first kind of attribute and a second kind of attribute <u>and being explicitly designated by a host computer</u>, said image forming apparatus comprising:

a separation unit separating the types of form data corresponding to an image with text into a type of form data corresponding to the image as the first kind of attribute and a type of form data corresponding to the text as the second kind of attribute;

a storage unit storing each of the types of separated form data in a different one of storage locations according to one of the first kind of attribute and the second kind of attribute of each type of the separated form data;

an image buffer having a plurality of the storage locations and storing each type of the separated form data, one by one, in a different one of the storage locations according to one of the first kind of attribute and the second kind of attribute of each type of the separated form data;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of form data stored in a corresponding storage location of said image buffer;

a form data integration circuit integrating the plurality of types of form data read by said video interfaces to be formed on one page; and

on output mechanism outputting the integrated form data on one page.

29. (ONCE AMENDED) A controller controlling a plurality of types of form data to be formed on one page, each of the types of form data having an attribute <u>identifying the type of print data, the attribute</u> comprising one of a first kind of attribute and a second kind of attribute <u>and being explicitly designated by a host computer</u>, said controller comprising:

a separation unit separating the types of form data corresponding to an image with text into a type of form data corresponding to the image as the first kind of attribute and a type of form data corresponding to the text as the second kind of attribute;

a storage unit storing each of the types of separated form data in a different one of storage locations of an image buffer according to one of the first kind of attribute and the second kind of attribute of each type of the separated form data;

a plurality of video interfaces, each of said video interfaces independently reading one of the types of form data stored in a corresponding one a plurality of the storage locations of said image buffer according to one of the first kind of attribute and the second kind of attribute of each type of form data; and

a form data integration circuit integrating the plurality of types of form data read by said video interfaces to be formed on one page.

30. (ONCE AMENDED) A method of processing a plurality of types of form data according to an attribute of each type of form data, the attribute identifying the type of print data, the attribute comprising one of a first kind of attribute and a second kind of attribute and being explicitly designated by a host computer, and the form data to be formed on one page, comprising:

separating the types of form data corresponding to an image with text into a type of form data corresponding to the image as the first kind of attribute and a type of form data corresponding to the text as the second kind of attribute;

storing each of the types of separated form data in a different storage location according to one of the first kind of attribute and the second kind of attribute of each type of the separated form data;

reading each one of the plural types of stored form data;

applying a different image process to each one of the read plural types of stored form data; and

outputting the processed form data on one page.